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ABSTRACT

This research project focused on the development of instruments and procedures which a local secondary school evaluating group may use for conducting its own evaluation of the local program of vocational education in agriculture. The report covers Phase I of a four-phase project and presents the development and trial of instruments and procedures in two Maryland public high schools. Twenty-five instruments and guides are presented with suggestions for their use as well as suggestions regarding the treatment of the data. Further testing and refinement of the instruments and procedures are scheduled for later phases of the project. A bibliography is appended. (Author/GB)

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Model for evaluation of secondary school programs of vocational education in agriculture

A. H. Krebs

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MODEL FOR EVALUATION OF SECONDARY SCHOOL PROGRAMS OF VOCATIONAL EDUCATION IN AGRICULTURE

A. H. Krebs*

INTRODUCTION

Evaluation can take many forms depending on the purposes for making the evaluation and on the biases of those responsible for the evaluation. In vocational education, certain biases of national legislators are reflected in the provisions of federal legislation requiring evaluations of federally supported vocational programs to determine the influence of the programs on the development of the individual enrollee. For the first time in history, vocational educators are being asked to show a relationship between program participation and program participant development--a task the profession should have undertaken without legislative encouragement. As one segment of the vocational education endeavor, programs of vocational education in agriculture are subject to this federal legislative directive regarding evaluation.

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*At the time this study was completed, Dr. Krebs was professor of agricultural education, Department of Agricultural and Extension Education, University of Maryland. He is now head of agricultural education, Virginia Polytechnic Institute.

It is not that evaluation has been ignored over the years. Evaluations have been conducted continuously in many forms. The problem is that most evaluations have been either limited occupational follow-up studies of former students or qualitative professional judgments regarding program conduct, rather than program evaluations based on objective data.

The literature is so replete with reports of vocational agriculture student occupational follow-up studies that no citations are included in this writing. Examples of qualitative professional judgments regarding programs are probably as numerous, but these are often entombed in the reports of national, regional, or state educational accreditation reports. The U. S. Office of Education bulletin, An Evaluation of Local Programs of Vocational Education in Agriculture[1], is an excellent example of the form of the instruments used for evaluation of program conduct. This particular form of evaluation has been reproduced in modified forms many times.

A recent survey of current research on evaluation revealed a great deal of interest in evaluation but very little progress. Much of the focus still appears to be on qualitative judgments by teams of professionals. In addition, the major thrust has

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[1]Federal Security Agency, Office of Education, An Evaluation of Local Programs of Vocational Education in Agriculture, Vocational Bul. No. 240, Agr. Series No. 58 (Washington: U. S. Government Printing Office, 1949).

been on evaluations of vocational education rather than on evaluations of specific fields of vocational education.

Two evaluation efforts are of special importance in relation to this study. The first is the research of H. M. Byram on evaluation of vocational education in the public schools.[2] Byram's publication of guidelines for evaluation of vocational agriculture programs points in the needed direction.[3] The second effort, which bears a close resemblance to this study, is by M. U. Eninger. Eninger's study was a national survey to determine student characteristics and their relationships to the occupational and post-high school educational experiences of trades and industries vocational course graduates.[4] Of particular interest is the kind of information obtained about former students. As indicated by the title, the study was not in the area of agricultural education.

An excellent presentation of some of the most basic considerations regarding citizen evaluation of public occupational

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[2]Harold M. Byram, Evaluating Vocational Education in the Public Schools, Educational Research Series, No. 32 (East Lansing, Michigan: Bureau of Educational Research Services, College of Education, Michigan State University, 1965).

[3]Harold M. Byram, Guidelines for Evaluation of Local Programs of Vocational Agriculture (East Lansing, Michigan: Michigan State University, 1968).

[4]Max U. Eninger, The Process and Product of Trade and Industry High School Level Vocational Education In the United States (Pittsburgh, Pennsylvania: American Institutes for Research, 1965).

education was prepared by H. M. Hamlin.[5] In his publication, Hamlin stresses the critical importance of evaluation by citizens. He suggests issues of concern and offers suggestions for organizing and conducting citizen evaluations.

Despite all past efforts on evaluation, there is no set of instruments and procedures which a local secondary school evaluating group can use in conducting an evaluation of the local program of vocational education in agriculture. It is toward the development of evaluative instruments and procedures that this research has been directed.

Objectives

The major objectives of this project were: (1) to develop instruments and procedures for use by local advisory groups in evaluating secondary schools' vocational agriculture programs; and (2) to quantify certain criteria for use in evaluation of vocational agriculture programs.

Sub-objectives included the following:

1. To determine what local secondary school evaluating groups view as an adequate evaluation of a vocational agriculture program.
2. To determine what kinds of information are essential in evaluating a vocational agriculture program.

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[5]H. M. Hamlin, Citizen Evaluation of Public Occupational Education, Center Monograph No. 1. (Raleigh, North Carolina: Center for Occupational Education, 1967).

3. To adapt the instruments and procedures developed for local program evaluation to the evaluation of state programs.
4. To determine the influence of continuing evaluation on program development in secondary schools.
5. To determine whether a local citizen advisory group could and would conduct a meaningful evaluation of the local vocational agriculture program.

There were many assumptions upon which the design of the evaluation instruments and procedures rested. The major assumptions were:

1. The most meaningful evaluation, in terms of resultant program changes, will be evaluation for which the lay citizens of the local community have a major responsibility.
2. Local communities will want and need assistance from consultants representing the subject area of the program being evaluated.
3. In depth evaluations for each vocational subject area are needed.
4. Evaluations should be in terms of the local community objectives.
5. Program evaluation by local advisory groups should result in the compilation and presentation of data which serve as the basis for value judgments. If program evaluation reveals a need for evaluation of any aspect

of how the program is being conducted, this kind of evaluation is the responsibility of the professional administrative staff.

6. Evaluations should relate programs to the success of the individuals who were enrolled in the programs.
7. Evaluation procedures and instruments should be so designed that their use is within the limits of what local evaluating groups might reasonably be expected to do.
8. The follow-up on a former student one year after he leaves high school will provide a better basis for evaluation than a follow-up conducted after longer periods of time. The one-year follow-up will also be less subject to criticism because of the influence of "post-high school leaving" experiences. (This does not mean that long-time follow-up studies are of no value.)
9. Evaluation is a continuing process.
10. Evaluation of programs can be based on the local minimum standards established for various parts of the program.

RESEARCH PROCEDURES

This report is for Phase I of a four-phase project. Phase I included the development and trial of instruments and procedures for evaluation of programs of vocational education in agriculture in two Maryland high schools.

Testing and refinement of the instruments and procedures was scheduled for later phases of the project.

Instrumentation and Procedures for Evaluation

The instruments and procedures for evaluation were developed by the researcher and were then duplicated for use in the project as a preliminary guide for evaluation.

Selection of Case Schools

Two Maryland public secondary schools were arbitrarily selected for participation. Permission was obtained for conducting a trial evaluation of the vocational agriculture programs using the vocational agriculture program graduating classes of 1966 for the student follow-up section of the evaluation.

Data Collection

In each project school, special citizen committees were established to assist with the evaluation. The preliminary evaluation guide was distributed to the evaluation committees and discussed.

In one project school, the members of the evaluation committee were given data collection assignments. In the second project school, the members of the evaluation committee were used only for advisory purposes. Data were collected by the research staff, assisted by school personnel.

The data were collected during the months of May and June, 1967--approximately one year after the graduation date for 1966.

Treatment of Data

The data collected in the project schools were summarized and published as a report to the cooperating schools. A short statement of the interpretations and recommendations by the researcher, based on the data, was included in each report. In addition, a reporting and discussion session was held with each evaluation committee.

Based on the trial experience in the two project schools, a tentative model for evaluation was developed as reported in this writing.

Limitations

The model for evaluation is based on one trial experience in each of two cooperating schools. Instruments and procedures reflect situations in the cooperating schools.

The instruments for recording data regarding current high school enrollees and adult enrollees were not given a trial in this pilot effort.

MODEL FOR EVALUATION

The model for evaluation is presented in three parts as follows:

Part I. Suggested Procedures

The procedures suggested are for the conduct of a continuing evaluation of a secondary school vocational agriculture program by a local citizen advisory group under the direction of a teacher of agriculture.

General Procedures

1. Secure the appointment of a continuing citizen advisory council for the agricultural education department following the best known procedures for advisory group organization.
2. Discuss the evaluation model with the advisory council, making modifications deemed necessary for the local school situation.
3. Prepare for submission to the board of education a brief proposal for evaluating the vocational agriculture program. This proposal should include sufficient financial assistance to enable the advisory council to employ someone to collect and summarize the data in report form for study and analysis.
4. Employ the person to collect and summarize the data; orient the data collector to the project at an advisory council meeting.

5. Supervise the collecting and summarizing of the data.
6. Study and analyze the data with the advisory council, using as many advisory council meetings as necessary.
7. Develop a report on the evaluation for submission to the board of education. This report should include a copy of the assembled data, a report of the evaluative judgments of the advisory council based on the data, and a list of recommendations for improving the program.
8. Continue consideration of the evaluation report with the advisory council, developing plans for implementing the recommendations.
9. Build into the plans for the vocational agriculture program an annual evaluation following the procedures outlined.
10. Provide for the consolidation of data for a period of years, as well as for comparisons between and among years, as the annual evaluations are made.
11. Involve consultant assistance from professional agricultural educators in the evaluation, especially in the interpretation of the data.
12. Coordinate the vocational agriculture program evaluation with other school program evaluations, both local and state.

Data Collection Procedures

1. For interviewing former students, arrange for one or two nights when the students are asked to return to the agriculture department to be interviewed. Most former students in the trial study were very willing to give their time to aid the school in improving the program through the evaluation. Individual contact, in person or by telephone, will be needed for former students not interviewed during the scheduled session at the schools.
2. For interviewing employers, use visits to the business or contact by telephone. Most employers cooperated willingly when the purpose of the project and the confidential nature of their responses were explained.
3. For each student--dropout or graduate--complete the preliminary information or the student information forms at the time of his leaving school in preparation for evaluation at a later date.
4. To secure the data about the school and vocational agriculture program, interview the local school agricultural education staff. Modify data forms and records for compatibility with other local school and state evaluations.
5. Collect or up-date the data about the school, community, and vocational agriculture program during the spring of each year.
6. Collect the data from former students and their most

recent or current employers approximately one year after the date the students were graduated from high school.

7. Collect the data from adults toward the end of the school year during which they were enrolled in the adult education program.

Use of Suggested Instruments

It is suggested that all of the instruments be used in order to conduct as complete an evaluation as possible. However, select and use only certain parts of the total evaluation model if you desire less than a complete evaluation.

Part II. Instruments and Guides for Recording Data

With the exceptions of the instrument for recording data about adult enrollees and Form 8 for recording data about current enrollees, the following instruments are modifications of forms used in the trial evaluation. Each local citizen evaluating committee will need to make certain additional modifications to fit the local situation.

Form 8 was added because of the need for information about students currently enrolled.

The instruments for recording data are designed for use by a data collector. Some general suggestions regarding their use are included in this report.

List of Instruments and Guides

Form 1. Individual Student: School Records and/or Exit Interview

Form 2. Individual Student: Employment

Form 3. Individual Student: Continuing Education

Form 4. Individual Student: Social Adjustment

Form 5. Individual Student: Employer Satisfaction Rating

Form 6. Individual Student: Adult Education

Form 7. Individual Student: Content-Use Inventory

Form 8. Individual Student: Personal Data for Current Students

Form 11. Manpower Needs in Agriculture - School Placement Area

Form 12. Population Served by Vocational Education in Agriculture

Form 13. Placement-High School Graduates - Agriculture Program

Form 14. Placement-High School Nongraduates - Agriculture Program

Form 15. Persons Interested in Enrolling in Agriculture Courses

Form 16. Enrollment Objectives for Agriculture Program

Form 17. Secondary Program Financial Analysis - Agriculture

Form 18. Adult Program Financial Analysis - Agriculture

Form 19. Adult Attitudes Toward Vocational Agriculture in the Public Schools

Form 20. Occupational Experiences in Agriculture - Standards

Form 21. Purposes of Local Education Programs

Form 22. Local Policies Relating to Agricultural Education

Form 23. Local Resources for Vocational Education in Agriculture

Form 24. Kinds of Agricultural Education Programs - Vocational and Nonvocational

Form 25. State and Federal Contributions to the Vocational Agriculture Program, Other Than Financial

Form 26. Agricultural Occupations Survey

Form 27. Provisions for Evaluating the Vocational Agriculture Program

General Suggestions for Obtaining Data

Form 1. Obtain this information from school records. Some of the data may be obtained directly from the student by conducting an "exit interview" at the time he leaves school.

Form 2. Complete this form one year after the student leaves school. Obtain the data through a personal interview, or if the student has left the community, use a telephone interview.

Form 3. See suggestions for Form 2. Use a separate form for each program and institution in which the student is enrolled.

Form 4. See suggestions for Form 2.

Form 5. Complete this form one year after the student leaves school, through personal contact with employer.

Form 6. Complete this form at the time the other data for program evaluation are collected. Use one form for each adult enrolled during the past year.

Form 7. See suggestions for Form 2.

Form 8. Obtain this information from school and agricultural education department records.

Form 11. Request data for this form from the Employment Security Office for the area. If not available, special study will be needed. See Form 26 for a suggested instrument for surveying businesses to secure employment data. The data should be for the area in which former students secure jobs. If possible, secure data by school districts so that effects of nearby school programs can be estimated.

Form 12. Data for this form should be obtained from school records, school census reports, and from population census reports.

Form 13. Data for this form represent a summary of data in Forms 2 and 3, plus agriculture program enrollment data.

Form 14. See suggestions for Form 13.

Form 15. Data for this form are obtained by conducting a survey of interests for the groups identified. A simple check-list of agricultural occupations, including a place to check those in which interest was shown, may be used. Often, studies of this kind are made for all students using a list of occupations for all areas of study in the school.

Form 16. Data for this form are obtained from school records; determination of program enrollment capacity is based on existing staff and facilities; and data projection is based on data in Forms 11, 12, 13, 14 and 15.

Form 17. Data for this form are available from the vocational

education plans and/or projections reports submitted to the state departments of education annually.

Form 18. Information for Form 18 may be obtained from the reports submitted to state departments of education and from other school records on adult programs. Some estimating may be necessary.

Form 19. This form is designed to obtain information about attitudes toward the vocational agriculture program. The instrument should be administered to a randomly selected sample of the adult citizens of the school district. Professional advice should be obtained to guide the sampling process.

Form 20. The teacher of agriculture should supply the information for this form.

Form 21. Copies of statements of purposes should be available in school documents. Only written statements of purposes should be used.

Form 22. Copies of policy statements may be available in school documents. If policies have not been codified, the minutes of school board meetings will be an acceptable source of information. Permission should be sought to employ a consultant to identify the policies that have been enacted.

Form 23. Brief statements regarding resources may be obtained from the agricultural education staff.

Form 24. Descriptive statements of the various kinds of programs to supplement the tabulated information may

be obtained from the staffs for the program.

Form 25. Information for this form should be obtained from local school personnel. List the contributions only if used in or by the local program.

Form 26. Detailed data regarding local agricultural occupations should be obtained through personnel interviews. These interviews should be conducted by the person employed and trained to collect data.

Form 27. A brief description of provisions for evaluation may be obtained from school documents and personnel.

Form 1. Individual Student: School Records and/or Exit Interview

Student No. _____

State _____

School _____

* * *

1. Name of student _____

2. Sex: ____Male ____Female 3. Race: _____

4. Present address _____

5. Permanent address _____

6. Birth date _____

7. Highest grade completed _____

8. Date leaving school _____

9. Age when leaving school _____

10. Grade point average for high school _____

11. High school class rank ____ Class size ____ Percentile rank__

12. Academic aptitude test _____
(8th or 9th grade) (Test name and results)

13. Days absent from school: ____Freshman ____Junior

____Sophomore ____Senior

Total _____

14. Vocational courses and grades: (Including Industrial Arts)

Course	Credit	Grade
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Form 1. (continued)

15. Total number of high school credits _____

16. Grade point average in vocational agriculture _____

17. Grade point average in vocational courses other than agriculture _____

18. Participation in FFA:

    a. Number of years membership _____

    b. Offices held _____

    c. Chairmanship of committees _____

19. Occupational experience program participation:

Kind	No. of Years	Hours of experience
Farming program	_____	_____
Placement-employment program (cooperative)	_____	_____
Placement-employment program (non-cooperative)	_____	_____
School facilities	_____	_____
Self-employment	_____	_____
Other (describe) _____	_____	_____
_____		
Total:		_____

20. School citizenship rating when first enrolling in agricultural education program _____

21. Reasons for leaving high school: (check all that apply)

    ____ a. Took a job

    ____ b. Transferred to another school

    ____ c. Entered vocational school

    ____ d. Entered military service

Form 1. (continued)

____ e. Graduated

____ f. Other (explain) _____

Form 2. Individual Student: Employment

Student Name _____ Student No. _____

Jobs held-titles[1]	Employer name and address	Date took job	Date left job	Hours per week	Wages[2] starting	Wages[2] ending[3]	Level of job satisfaction[4]
1st							
2nd							
3rd							
4th							
5th							
6th							

Note: Use additional forms as needed to list all jobs held.

Military service dates: From _____ to _____

[1]Report each change of position or job within the same business as a new job.

[2]Show wages by amount per hour.

[3]Record current wage for job now held. Record best estimate of wages individual can provide.

[4]Scale: 1 = highly satisfied; 2 = satisfied; 3 = noncommittal; 4 = dissatisfied; 5 = highly dissatisfied.

Form 3. Individual Student: Continuing Education

Student Name _____ Student No. _____

* * *

1. Name of institution in which enrolled _____

2. Address of institution _____

3. Dates of enrollment: Starting _____ Ending _____

4. Program (or course) in which enrolled _____

5. Program major (if not same as program) _____

6. Enrollment status; full-time student ____

part-time student ____

7. Length of the program (months) _____

8. Objective for which enrolled: (check all that apply)

____ a. Preparation for job (specify) _____

____ b. Upgrading in present job

____ c. Maintaining competency for present job

____ d. No occupational objective

____ e. Other reason (specify) _____

9. If no longer enrolled in the program named, check all of the following that apply:

____ a. Completed program of course

____ b. Transferred to another school program

____ c. Took a job

____ d. Entered military service

____ e. Academic dismissal

____ f. Other reasons for leaving (specify) _____

_____

Form 4. Individual Student: Social Activity

Student Name _____ Student No. _____

1. Organization and community activities: (List and indicate offices and chairmanships held)

   a. Agricultural and labor groups:

   b. Civic and service clubs:

   c. Church groups:

   d. Recreation and sports groups:

   e. Other

2. Leisure time activities: (List all participated in during past year)

Outdoor (hunting, fishing, swimming, racing, etc.)	Indoor (chess, cards, painting, etc.)

3. Residence and marital status: (check)

   ____ Living with parents

   ____ Living in rooming house

   ____ Living in apartment

   ____ Living in own home

   ____ Single

   ____ Married

Form 5. Individual Student: Employer Satisfaction Rating*

Student Name _____ Student No. _____

Name of job or position _____

Category	Highly satisfactory	Satis-factory	Unsatis-factory	Does not apply
Technical competence (knowledge and skill)				
Ability to learn on the job and to adjust to new situations				
Personal characteristics (acceptability)				
Competence in:				
Reading				
Writing				
Mathematics				
Work habits				

Other comments:

*Complete a form for most recent job for which employer or work supervisor can be contacted.

Form 6. Individual Student: Adult Education

Student Name _____ Student No. _____

Highest grade completed: (circle) Under 7, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, over 16

Present occupation: _____

Adult courses in which enrolled*	Year	Purposes for which enrolled			Evidence of accomplishment of purpose--record any evidence available**
		Improve in present occupation	Prepare for new occupation	Other reasons (specify)	

*For the year or years included in the evaluation.

**Evidence such as: job or salary promotions; employment in new occupation; recognition for work performed; comments regarding increased job satisfaction; increased crop or livestock production or work efficiency; improved marketing; increase in net income and net worth.

Form 7. Individual Student: Content - Use Inventory

Student Name _____ Student No. _____

Directions: Below are selected knowledges and abilities a student may have learned while studying vocational agriculture. Please put an (X) in the proper column for each content item listed to indicate the use of the item by the former student in any way since he left school -- performed, helped perform, explained to someone, or supervised someone who performed it.

Content - Use Inventory Item	Used in/or because of jobs held	Used, but not in jobs held	Did not use
Area: Guidance and Leadership			
1. Locating, applying for, and obtaining job			
2. Becoming established in a business in a "self-employment" capacity			
3. Serving as an active member of an organization or organized group			
4. Using parliamentary procedure			
5. Serving as a member or chairman of a committee			
6. Serving as an officer of an organization			
7. Conducting a meeting of a group of people			
8. Planning a program of work for an organized group			
9. Preparing a display or writing a news article			
10. Giving a talk before a group of people			
11. Participating in a public service activity			

Form 7. (continued)

Content - Use Inventory Item	Used in/or because of jobs held	Used, but not in jobs held	Did not use
12. Explaining farming to an individual or group of people	_____	_____	_____
13. Explaining agriculture to an individual or group of people	_____	_____	_____
14. Explaining agricultural occupations to an individual or group of people	_____	_____	_____

Area: Livestock and Poultry and Their Products

Place a check mark before each of the following with which you had either direct or indirect contact in your work or in other activity since leaving high school.

____ Beef
____ Dairy
____ Horses
____ Sheep
____ Swine
____ Chickens
____ Wild life (animals and birds)
____ Ducks
____ Geese
____ Turkeys
____ Other animal or specialty (list) _____
____ Sales and services related to area

15. Identifying breeds and types	_____	_____	_____
16. Judging	_____	_____	_____
17. Selecting for purchase	_____	_____	_____
18. Determining prices for purchase or sale	_____	_____	_____
19. Purchasing	_____	_____	_____
20. Feeding and caring for breeding flock or herd (at any age)	_____	_____	_____

Form 7. (continued)

Content - Use Inventory Item	Used in/or because of jobs held	Used, but not in jobs held	Did not use
21. Feeding and caring for the young			
22. Feeding and caring for the producing flock or herd			
23. Feeding and caring for the market flock or herd			
24. Planning and balancing rations			
25. Purchasing feed and supplies			
26. Providing and maintaining housing			
27. Providing, maintaining, and operating equipment			
28. Planning for disease or parasite prevention and control			
29. Treating for diseases or parasites			
30. Identifying diseases or parasites			
31. Training and handling			
32. Preparing for sale			
33. Selling			
34. Selecting for sale			
35. Planning a breeding program and breeding			
36. Keeping and using enterprise records			

Form 7. (continued)

Content - Use Inventory Item	Used in/or because of jobs held	Used, but not in jobs held	Did not use
37. Registering with breed association	_____	_____	_____
38. Identifying cuts of meat	_____	_____	_____
39. Processing for market	_____	_____	_____
40. Storing	_____	_____	_____
41. Transporting	_____	_____	_____
42. Inspecting	_____	_____	_____
43. Grading	_____	_____	_____
44. Testing milk	_____	_____	_____
45. Milking	_____	_____	_____
46. Shearing or clipping	_____	_____	_____

Area: Plants and Soils

Place a check mark before each of the following with which you have had either direct or indirect contact in your work or in other activity since leaving high school.

____ Field crops

____ Forage crops

____ Fruit crops

____ Vegetable crops

____ Turf

____ Nursery products

____ Greenhouse products

____ Forest products

____ Soils and fertilizer

____ Water

____ Wild life (plants)

____ Specialty crops (list) _____

____ Sales and services related to area

Form 7. (continued)

Content - Use Inventory Item	Used in/or because of jobs held	Used, but not in jobs held	Did not use
47. Identifying seeds and plants			
48. Selecting and purchasing			
49. Judging			
50. Determining price			
51. Taking soil samples			
52. Testing soil			
53. Interpreting soil tests			
54. Preparing soil for planting			
55. Selecting and purchasing fertilizer			
56. Applying fertilizer			
57. Blending or mixing fertilizer			
58. Identifying nutrient deficiencies in plants			
59. Planting seeds			
60. Planting seedlings and other plants			
61. Propagating plants through grafting, layering, etc.			
62. Identifying weed seeds and plants			
63. Selling supplies and materials used for growing plants			
64. Buying and applying chemicals for weed control			

Form 7. (continued)

Content - Use Inventory Item	Used in/or because of jobs held	Used, but not in jobs held	Did not use
65. Drying crops artificially			
66. Identifying insects			
67. Buying and applying chemicals for insect control			
68. Identifying plant diseases			
69. Treating plants for disease control			
70. Harvesting			
71. Storing			
72. Marketing			
73. Preparing for market			
74. Transporting			
75. Producing hybrid and certified seed			
76. Conducting plant breeding work			
77. Processing			
78. Inspecting			
79. Grading			
80. Pruning and training			
81. Classifying soil			
82. Controlling brush			
83. Caring for a woodlot			
84. Working the soil			
85. Managing pastures			

Form 7. (continued)

Content - Use Inventory Item	Used in/or because of jobs held	Used, but not in jobs held	Did not use
86. Maintaining organic matter in the soil			
87. Thinning fruit and plants			
Area: Agricultural Mechanics (including related sales and services activities for each item)			
88. Using safety equipment and practices in mechanics work			
89. Reconditioning and caring for hand tools			
90. Maintaining, operating, and caring for power equipment			
91. Performing carpentry or other work with wood			
92. Performing cold metal work			
93. Performing sheet metal work			
94. Performing hot metal work			
95. Performing masonry work			
96. Performing concrete work			
97. Performing plumbing work			
98. Performing electrical wiring work			
99. Maintaining electric motors			
100. Welding with oxy-acetylene gas (gas welding)			
101. Welding with electricity (arc welding)			

Form 7. (continued)

Content - Use Inventory Item	Used in/or because of jobs held	Used, but not in jobs held	Did not use
102. Adjusting and/or assembling machinery			
103. Repairing, maintaining, and operating machinery			
104. Overhauling, maintaining, and using small engines			
105. Overhauling, maintaining, and using tractors and stationary engines			
106. Planning, installing and maintaining a drainage system			
107. Planning and building conservation structures			
108. Planning, installing, and maintaining an irrigation system			
109. Planning and installing a water supply system			
110. Planning and developing a mechanics shop			
111. Using complex electrical controls			
112. Planning and using automatic feed handling systems			
113. Building fences			
114. Surveying			
Area: Management and Operation of Agricultural Businesses			
115. Keeping and using records			

Form 7. (continued)

Content - Use Inventory Item	Used in/or because of jobs held	Used, but not in jobs held	Did not use
116. Preparing income and social security tax statements	_____	_____	_____
117. Planning a cropping system	_____	_____	_____
118. Planning a livestock system	_____	_____	_____
119. Developing and operating an agricultural recreation business	_____	_____	_____
120. Planning and using a financial budget	_____	_____	_____
121. Making a soil conservation plan	_____	_____	_____
122. Working with government agricultural programs	_____	_____	_____
123. Determining need for and extending or obtaining credit	_____	_____	_____
124. Planning a marketing program	_____	_____	_____
125. Using knowledge of agricultural law	_____	_____	_____
126. Determining need for and selling or purchasing insurance	_____	_____	_____
127. Determining need for and purchasing machinery and equipment	_____	_____	_____
128. Determining need for and purchasing land and buildings	_____	_____	_____
129. Managing a woodlot	_____	_____	_____

Form 7. (continued)

Content - Use Inventory Item	Used in/or because of jobs held	Used, but not in jobs held	Did not use
130. Managing a greenhouse	_____	_____	_____
131. Managing a nursery	_____	_____	_____
132. Managing a farm	_____	_____	_____
133. Determining soil capability	_____	_____	_____
134. Planning a soil fertility program	_____	_____	_____
135. Taking an inventory	_____	_____	_____
136. Preparing or using a lease or agreement	_____	_____	_____
137. Determining need for and securing labor	_____	_____	_____
138. Managing labor	_____	_____	_____
139. Contracting for production or other project	_____	_____	_____
140. Planning for safety	_____	_____	_____
141. Promoting sales	_____	_____	_____
Area: General			
142. Planning for and using community services (schools, churches, parks, etc.)	_____	_____	_____
143. Raising food for home consumption	_____	_____	_____
144. Planning and promoting wild life conservation	_____	_____	_____
145. Designing a landscape plan	_____	_____	_____
146. Installing a landscape plan	_____	_____	_____

Form 8. Individual Student: Personal Data for Current Students

Student No. _____

State _____

School _____

* * *

1. Name of student _____ Age _____
2. Sex: _____Male; _____Female
3. Race: _____
4. Academic aptitude test score: _____
5. Present grade: 7, 8, 9, 10, 11, 12
6. Citizenship rating: _____
7. Agricultural program (option) in which enrolled: _____
8. Vocational courses - present and completed:

Course	Credit	Grade
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Form 11. Manpower Needs in Agriculture - School Placement Area

Year _____

Category	Present employment number	Number for average yearly replacement and growth
Agricultural production		
Agricultural construction		
Agricultural power and machinery		
Agricultural supplies and services		
Agricultural processing and marketing		
Forestry and conservation		
Ornamental horticulture		
Other (specify)		
Total agricultural labor force		

Form 12. Population Served by Vocational Education in Agriculture

Year _____

Population	Total number		Present enrollment in agriculture	
	Male	Female	Male	Female
1. By age level:				
6 to 14	____	____	____	____
15 to 19	____	____	____	____
20 to 24	____	____	____	____
25 and over	____	____	____	____
2. By grade level:				
Elementary school	____	____	____	____
Middle school (specify grades)	____	____	____	____
Secondary school:				
9th grade	____	____	____	____
10th grade	____	____	____	____
11th grade	____	____	____	____
12th grade	____	____	____	____
3. By special programs:				
Youth with special needs	____	____	____	____
Adults with special needs	____	____	____	____
4. By location category:				
Rural farm	____	____	____	____
Rural non-farm	____	____	____	____
Urban	____	____	____	____

Form 13. Placement -- High School Graduates -- Agriculture Program Year _____

Program Areas	Number of graduates	Placement				Percent placed*
		In jobs	In school	Armed forces	Unknown	
Agricultural production						
Agricultural construction						
Agricultural power and machinery						
Agricultural supplies and services						
Agricultural processing and marketing						
Forestry and conservation						
Ornamental horticulture						
Special needs						
Other (specify)						
Totals						

*Of those who could be located.

Form 14. Placement -- High School Non-graduates -- Agriculture Program

Year _____

Program Areas	Number of non-graduates	Placement				Percent placed*
		In jobs	In school	Armed forces	Unknown	
Agricultural production						
Agricultural construction						
Agricultural power and machinery						
Agricultural supplies and services						
Agricultural processing and marketing						
Forestry and conservation						
Ornamental horticulture						
Special needs						
Other (specify)						
Totals						

*Of those who could be located.

Form 15. Persons Interested in Enrolling in Agriculture Courses

Year _____

Group	Total in group	Interested in agriculture: Male	Female
1. Secondary school:			
7th grade	_____	_____	_____
8th grade	_____	_____	_____
9th grade	_____	_____	_____
10th grade	_____	_____	_____
11th grade	_____	_____	_____
12th grade	_____	_____	_____
2. Youth with special needs: (specify)			
_____	_____	_____	_____
_____	_____	_____	_____
3. Adult groups (specify):			
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Form 16. Enrollment Objectives in Agricultural Programs

Year _____

Program or course	Enrollment capacity*	Present enrollment	Projected enrollment
1. Elementary school:			
_____	_____	_____	_____
_____	_____	_____	_____
2. Middle school:			
_____	_____	_____	_____
_____	_____	_____	_____
3. Secondary school:			
Agricultural production	_____	_____	_____
Agricultural construction	_____	_____	_____
Agricultural power and machinery	_____	_____	_____
Agricultural supplies	_____	_____	_____
Agricultural processing and marketing	_____	_____	_____
Forestry and conservation	_____	_____	_____
Ornamental horticulture	_____	_____	_____
4. Youth with special needs:			
_____	_____	_____	_____
_____	_____	_____	_____
5. Adult:			
Upgrading courses	_____	_____	_____
Retraining courses	_____	_____	_____

Form 16. (continued)

Program or course	Enrollment capacity*	Present enrollment	Projected enrollment
Special needs			
Service courses			
Total			

*Based on present staff and facilities.

Form 17. Secondary Program Financial Analysis -- Agriculture

Item	Present Support		Support Needed	
	Total	Per student	Total	Per student
	(Fiscal Year _____)		(Fiscal Year _____)	
Staff, instructional	$_____	$_____	$_____	$_____
Materials and supplies for instruction	$_____	$_____	$_____	$_____
Equipment	$_____	$_____	$_____	$_____
Travel	$_____	$_____	$_____	$_____
Other (specify) _____	$_____	$_____	$_____	$_____
Totals				
Source of funds:				
Local	$_____	$_____	$_____	$_____
State	$_____	$_____	$_____	$_____
Federal	$_____	$_____	$_____	$_____

Form 18. Adult Program Financial Analysis -- Agriculture

Item	Present Support		Support Needed	
	Total	Per student	Total	Per student
	(Fiscal Year _____)		(Fiscal Year_____)	
Staff, instructional	$_____	$_____	$_____	$_____
Materials and supplies for instruction	$_____	$_____	$_____	$_____
Equipment	$_____	$_____	$_____	$_____
Travel	$_____	$_____	$_____	$_____
Other (specify) _____	$_____	$_____	$_____	$_____
Totals				
Source of funds:				
Local	$_____	$_____	$_____	$_____
State	$_____	$_____	$_____	$_____
Federal	$_____	$_____	$_____	$_____

Form 19. Adult Attitudes Toward Vocational Agriculture in the Public High School*

This is an inventory concerning your feelings about the vocational agriculture program in your public high school. You will agree with some of the statements, disagree with some, and be uncertain of others. There are no "right" or "wrong" answers. Whatever you happen to think about the statement is the right answer for you.

* * *

Please indicate your feelings as follows:

Encircle A if you agree with the statement, thus: SA (A) U D SD

Encircle SA if you strongly agree with the statement, thus: (SA) A U D SD

Encircle D if you disagree with the statement, thus: SA A U (D) SD

Encircle SD if you strongly disagree with the statement, thus: SA A U D (SD)

Encircle U if you are uncertain, thus: SA A (U) D SD

The following is an example of the way this questionnaire is arranged:

Students should be encouraged to graduate from high school. (SA) A U D SD

Circling SA (strongly agree) indicates strong agreement with this statement.

Read each statement carefully and decide how you feel about it. If your feeling falls between two choices, select the closer one.

Please respond to each item whether or not you have direct knowledge of the vocational agriculture program in your public high school.

Do not spend too much time on any particular statement.

All individual replies will be kept confidential.

---

*This instrument was developed by Donald Wamstad, Graduate Assistant in Agricultural Education, University of Maryland.

Form 19. (continued)

Circle the letters which indicate your response:

SA = Strongly Agree U = Uncertain D = Disagree

A = Agree SD = Strongly Disagree

---

1. Vocational agriculture should be available to students preparing for college.	SA	A	U	D	SD
2. Vocational agriculture should prepare students to earn a living.	SA	A	U	D	SD
3. Every student should take at least one course in vocational agriculture.	SA	A	U	D	SD
4. Vocational agriculture should be designed mainly for students of high academic talents.	SA	A	U	D	SD
5. Vocational agriculture should include instruction and study about livestock and poultry.	SA	A	U	D	SD
6. Only boys should be permitted to enroll in vocational agriculture courses.	SA	A	U	D	SD
7. Vocational agriculture is as important as any other high school program or subject.	SA	A	U	D	SD
8. Courses in agriculture should be provided for all adults who want such instruction.	SA	A	U	D	SD
9. A sense of personal responsibility should be developed in students through participation in FFA activities.	SA	A	U	D	SD
10. Vocational agriculture should include instruction in agricultural mechanics.	SA	A	U	D	SD
11. The FFA program of activities should place emphasis on helping students develop attitudes and abilities for good citizenship.	SA	A	U	D	SD
12. Vocational agriculture is useful only to students who are preparing for farming careers.	SA	A	U	D	SD

Go On To The Next Page

Form 19. (continued)

13. Vocational agriculture should be available to students in grades nine through twelve. SA A U D SD

14. Vocational agriculture should include instruction and study about agriculture business management. SA A U D SD

15. All students in the vocational agriculture program should be required to join the FFA. SA A U D SD

16. Vocational agriculture should include instruction and study about forestry. SA A U D SD

17. Some type of project work should be required of all students enrolled in vocational agriculture in order to use knowledges learned in the classroom. SA A U D SD

18. Vocational agriculture should teach students about job opportunities in the field of agriculture. SA A U D SD

19. Vocational agriculture should include instruction and study about ornamental plants and landscaping. SA A U D SD

20. The agriculture instructor should supervise through home or on-job visits the projects and other agricultural occupation experiences planned as a part of the vocational agriculture program. SA A U D SD

21. Knowledges and skills learned in vocational agriculture classes should lead to jobs for students. SA A U D SD

22. The values of vocational agriculture instruction should be made known to parents. SA A U D SD

23. The vocational agriculture instructor should help students arrange to obtain work experiences in agricultural occupations. SA A U D SD

24. Vocational agriculture should include instruction and study about crops and soils. SA A U D SD

Go On To The Next Page

Form 19. (continued)

25. Vocational agriculture should be provided only for students not planning to attend college. SA A U D SD

26. Vocational agriculture should include instruction and study about conducting business meetings properly. SA A U D SD

27. Enrollment in vocational agriculture should be encouraged among all high school students. SA A U D SD

28. Leadership abilities should be developed in students through participation in FFA activities. SA A U D SD

29. Vocational agriculture should be available to students who are preparing for non-farm agricultural jobs. SA A U D SD

30. Courses in vocational agriculture should be offered as part of the high school curriculum. SA A U D SD

31. An important responsibility of the high school should be to place its vocational agriculture graduates in jobs. SA A U D SD

32. Vocational agriculture should include instruction and study about conservation of soil, water, forest, and wildlife. SA A U D SD

33. The vocational agriculture program should offer adult classes only to farmers. SA A U D SD

34. Students should not be required to take a course in vocational agriculture. SA A U D SD

35. The function of a vocational agriculture program should be to help each student develop some saleable job skills. SA A U D SD

36. The vocational agriculture program should provide instruction in and opportunity for students to build and repair structures and/or equipment in an agriculture shop. SA A U D SD

Go On To The Next Page

Form 19. (continued)

37. Vocational agriculture should be offered for the rural non-farm student who has an interest in agriculture. SA A U D SD

38. Membership in the FFA should be open to all students in the vocational agriculture program. SA A U D SD

39. Vocational agriculture should be available to high school girls who are interested in agriculture. SA A U D SD

40. Vocational agriculture should include instruction and study about how to speak in public. SA A U D SD

41. The FFA should be a part of the vocational agriculture program. SA A U D SD

42. Vocational agriculture should be offered for the town student who has an interest in agriculture. SA A U D SD

43. The vocational agriculture program should be intended mainly for students of limited academic aptitude. SA A U D SD

44. Agricultural contests should be a part of the vocational agriculture program. SA A U D SD

45. The student should learn job skills as part of the vocational agriculture program. SA A U D SD

* * *

Form 20. Occupational Experiences in Agriculture: Standards

(Record standards for each form of program in terms of it being used as the only experience program a student would have.)

Type of Program	Minimum required hours per year				
	Work by student				Supervision by teacher
	(Fr)	(Soph)	(Jr)	(Sr)	
Farming program					
Placement-employment with no school released time (non-cooperative)					
Placement-employment-cooperative education program					
School laboratory facilities program; (as described in facilities provided)					
Self-employment					
Other: (specify)					

Form 21. Purposes of Local Education Programs

Attach copies of statements of purposes for each of the following:

Total educational program

Elementary education program

Secondary education program

Vocational education program

Vocational education in agriculture program

Form 22. Local Policies Relating to Agricultural Education

For each of the following areas, provide lists of both written and unwritten policies.

- Clientele
- Evaluation
- Facilities and equipment
- Finances
- Organization and administration
- Personnel training
- Policy formulation
- Public information
- Relationships to federal programs and personnel
- Relationships to other programs in school
- Relationships to programs in other institutions
- Relationships to state programs and personnel
- Research and development
- Staff

Form 23. Local Resources for Vocational Education in Agriculture

Staff for instruction: (names and teaching load)

Staff for administration and supervision: (list names and areas of responsibility)

Physical facilities: (brief descriptions of major elements)

Guidance services: (personnel and program, including placement services, and availability of these services to vocational agriculture program)

Research and development program: (report all organized efforts supported by allocation of personnel time and funds)

Public information program: (report all systematic or planned efforts to inform people about the program)

Consulting services: (report use made of consultants for vocational agriculture program)

Advisory council: (attach copies of constitution and operating rules, as available, for each of the following)

Agriculture Department Council:

Vocational Department Council:

School-Wide Council:

Form 24. Kinds of Agricultural Education Programs: Vocational and Nonvocational

	Brief description of program
Elementary school program:	
Secondary school program:	
Program for disadvantaged:	
Post-secondary school program:	
Adult programs:	
Non-public school programs:	
Other:	

Form 25. State and Federal Contributions to the Vocational Agriculture Program, Other Than Financial

	State	Federal
Supervisory:		
Consultative:		
Personnel training:		
Program development:		
Materials development:		
Employment services:		
Research:		
Written policies:		
Evaluation feedback:		

Form 26. Agricultural Occupations Survey Date _____

1. Name of company or business _____

_____

2. Address _____

3. Person to contact:

_____
(name and position) (telephone)

4. Functions of company or business:

____Manufacturing
____Purchasing
____Servicing
____Constructing
____Retailing
____Warehousing
____Processing
____Wholesaling
____Contracting
____Other (specify) _____

5. List of products or services for items checked in 4:

_____

_____

_____

_____

_____

6. Availability as training station for occupational experience program:

____Now being used
____Interested in possibilities
____Not interested

7. Job titles and number of workers in each:

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

8. Manpower needs:

Estimated annual replacement percentage _____

Estimated annual change in number of employees _____

Form 27. Provisions for Evaluating the Vocational Agriculture Program

Records kept:

Finances provided:

Personnel involved:

Public -

School -

Other -

Arrangements for initiating evaluation and for securing data:

Arrangements for reporting the results of evaluation to:

School personnel -

Public -

State (including legislature) -

Federal (including congress) -

Part III. Suggestions for Treatment and Interpretation of Data

Tabular analysis, summary in the form of tables, is suggested for treatment of the data.

Some of the data recording instruments are for data already in a summary form. Other data are obtained for individuals and require processing for using most effectively.

The following pages contain examples of table headings to indicate a few forms in which some of the data may be tabulated. Many additional tables are possible.

Professional consultants in agricultural education should be involved in the interpretations of the data. Each table or other section of the evaluation report should be interpreted separately, as well as in the context of the total study.

Table Grade Point Averages, Academic Aptitudes and Class Ranks of _____ (number) Vocational Agriculture Graduates, Class of _____ (year)

Student identification	School G. P. A.	Voc-ag G. P. A.	Other voc. course G. P. A.	Academic aptitude	School class rank (percentile)

* * *

Table Absence from High School of _____ (number) Vocational Agriculture Graduates, Class of _____ (year)

Student identification	First year	Second year	Third year	Fourth year	Total
	(number of days)				

* * *

Table Enrollment of _____ (number) Vocational Agriculture Graduates, Class of _____ (year) in Vocational Courses

Student identification	Vocational courses				Total all courses
	Agriculture	?	?	?	
	(years enrolled in each course)				

Table Occupational Experience Programs Conducted by _____ (number) Vocational Agriculture Graduates, Class of _____ (year)

Student identification	Kind of Program: Farming program (years)	(hours)	Placement-employment: Cooperative (years)	(hours)	Other (years)	(hours)	? (years)	(hours)

* * *

Table Participation in FFA by _____ (number) Vocational Agriculture Graduates, Class of _____ (year)

Student identification	Member of FFA (years)	Offices held (number)	Committee chairmanships (number)

* * *

Table Length of Time to First Job and Between Jobs for _____ (number) Vocational Agriculture Graduates, Class of _____ (year) During First Year after Graduation from High School

Student identification	Number of jobs	Weeks to first job	Average number of weeks between jobs

Table Level of Job Satisfaction as Reported by _____ (number) Vocational Agriculture Graduates, Class of _____ (year), for Jobs Held During First Year after Graduation from High School

Satisfaction rating	Number of jobs	Per cent

* * *

Table Starting and Ending Hourly Wage and Number of Hours Worked Each Week for _____ (number) Vocational Agriculture Graduates, Class of _____ (year), for First Year after Graduation from High School

Student identification	Hours worked per week - average for all jobs	Hourly wage	
		Starting	Ending

Table Level of Satisfaction Rating by Employers for Most Recent Job for which Ratings were Available for _____ (number) Vocational Agriculture Graduates, Class of _____ (year), During First Year after Graduation from High School

Student identification	Technical competence	Ability to learn-adjust	Personal characteristics	Competence in: Reading	Competence in: Writing	Competence in: Math	Work habits	Av. rating

* * *

Table Social Activities and Residences of _____ (number) Vocational Agriculture Graduates, Class of _____ (year), During First Year after Graduation from High School

Student identification	Number of organizations to which belonged	Number of leisure-time activities reported	Residence and marital status

* * *

Table Livestock and Poultry Areas of Knowledge with which _____ (number) Vocational Agriculture Graduates, Class of _____ (year), Had Contact During First Year after Graduation from High School

Area of knowledge	Graduates having contact: Number	Graduates having contact: Per cent

Table Plants and Soils Areas of Knowledge with which _____ (number) Vocational Agriculture Graduates, Class of _____ (year), Had Contact During First Year after Graduation from High School

Area of knowledge	Graduates having contact	
	Number	Per cent

* * *

Table Summary, by Areas, of Knowledges and Abilities Used by _____ (number) Vocational Agriculture Graduates, Class of _____ (year), During First Year after Graduation from High School

Area of knowledge or ability	Items in area	Items used for occupational reason		Items used for other than occupational		Items not used		Total all items checked
	(No.)	(No.)	(%)	(No.)	(%)	(No.)	(%)	(No.)

Table Summary of Knowledges and Abilities Used by _____ (number) Vocational Graduates, Class of _____ (year), During First Year after Graduation from High School for 146 Item Inventory

Student identification	Items used for occupational reason	Items used for reason other than occupational	Items not used	Total all items checked
	(number of items)			

* * *

Table Occupations of _____ (number) Vocational Agriculture Graduates, Class of _____ (year), During First Year after Graduation from High School

Student identification	Job titles in order jobs were taken			
	First	Second	Third	Fourth

SUMMARY

This research project focused on the development of instruments and procedures which a local secondary school evaluating group may use for conducting its own evaluation of the local program of vocational education in agriculture.

Research Procedures

The report covers Phase I of a four-phase project. Phase I included the development and trial of instruments and procedures in two Maryland public high schools.

Twenty five instruments and guides were developed. Suggestions for the use of the instruments and guides are included in the report.

The report also contains some suggestions regarding the treatment of the data.

Further testing and refinement of the instruments and procedures are scheduled for later phases of the project.

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APPENDIX

EVALUATION

Basis for Decision